

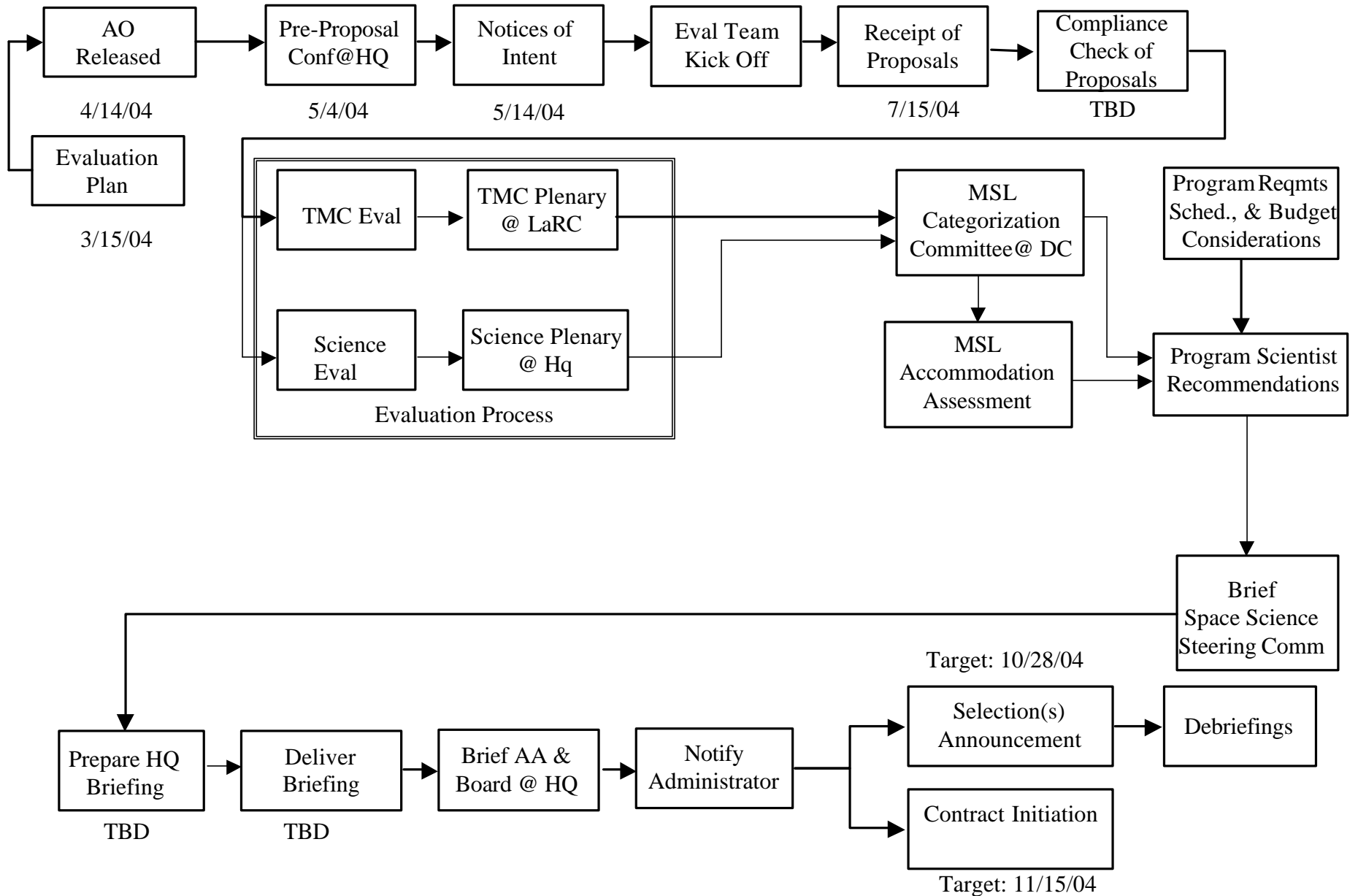
Overall Evaluation Process & MSL Science Evaluation

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Evaluation Plan

- Approved by
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Director (acting) of Mars Exploration Program
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MSL Proposal Review Process



Independent Evaluation

- Science Panel develops a consensus review of the Scientific Merit and Feasibility
- Technical, Management, and Cost (TMC) Panel develops a consensus review on Implementation Risk

Other MSL AO Selection Considerations

- After the Independent Evaluation by the Science and Technical Panels (see Evaluation Flow chart), a FAR required **Categorization Panel** will meet to decide the Category of each proposal as defined in the AO (Cat I, II, III, or IV).
- Subsequent to Categorization, the MSL Project will be requested to do an **Accommodation Assessment** by the Program Scientist for all Category I and II proposals and combinations of Cat I and II proposals.
- Following these activities, a briefing package will be delivered to the **Space Science Steering Committee** (an independent Hq committee composed of civil servants who have not participated in the rest of the Evaluation Process) who will then judge whether the process has been fairly conducted to all regulations and procedures and whether the documented results supports the findings and recommendations.
- A successful acceptance by the **SSSC** then allows the briefing package and results to be forwarded the the Selection officials for Selection.
 - Other Program Factors can also be a consideration in the Selection but this will be discussed later in the TMC Evaluation.

Contributed Instruments

- Contributed instruments are provided by foreign nations
- NASA will conduct an independent review of the instrumentation to insure that a functional, scientifically-valid instrument will be delivered on time for testing, calibration, validation and launch
- NASA gains in this arrangement
 - The instrument is contributed on a “**no-exchange-of-funds**” basis
 - The exchange often results in the enhancement of strategic US partnerships in space exploration, as well as science team membership opportunities
- There will be opportunity for US investigators to be involved in these instruments through open competition of investigations for interdisciplinary scientists, facility instrument scientists, and participating scientists

Document Hierarchy

- AO
- FAQs
- Appendices to AO
- PIP

Science Objectives – Floor

The overall MSL science objective to explore and quantitatively assess a local region on the Mars surface as a potential habitat for life, past or present

- A. Assess the biological potential of at least one target environment identified prior to MSL or discovered by MSL.
- B. Characterize the geology of the landing region at all appropriate spatial scales (i.e., ranging from micrometers to meters).
- C. Investigate planetary processes of relevance to past habitability, including the role of water

Science Objectives

D. Characterize the broad-spectrum of the surface radiation environment, including galactic cosmic radiation, solar proton events, and secondary neutrons

E. Of Lower Priority

- Investigate the presence of known toxic materials, such as Cr VI, as part of the basic geochemical surveys of Martian regolith or rocks

Evaluation Criteria

- Scientific Merit (Weight 40%)
- Science Feasibility (Weight 30%)
- Implementation Risk (Weight 30%)

Scientific Merit (Weight 40%)

- The scientific merit of the proposed investigation will be judged by its impact and relevance to the overall MSL science objective.
 - Impact is determined by whether the proposed investigation fills knowledge gaps, provides fundamental progress in our knowledge of Mars, provides ancillary benefit for space science, and/or supports or overlaps with ongoing Mars investigations.
 - Relevance will be judged on the relation of the proposed investigation to the primary science objectives (A-C) and to the secondary objectives (D-E) of the MSL mission as given in Section 2 above, and the approved goals of the MEP.

Science Feasibility (Weight 30%):

- Scientific Feasibility will be judged by the adequacy and resiliency of the proposed investigation with particular regard to its instrumentation's feasibility to supply the data needed for the proposed investigation within mission constraints
 - Clear and logical flowdown from stated objectives to requirements for observations to measurements to the data collected
 - Competency and roles of the science team including any proposed Co-Is
 - Adequacy of plans for data analysis, archiving, distribution, and publication

Implementation Risk (Weight 30%)

- The soundness of the technical and management implementation approach, schedule, and cost realism and reasonableness
 - Likelihood investigation can be implemented as proposed
 - Technical approach to design, develop, integrate, and test the proposed instrumentation hardware and software
 - Adequacy and robustness of the proposed resources
 - Competence and relevant experience of the proposed technical and management team
 - Soundness of plans and commitments to ensure that the investigation can be successfully completed and delivered within budget and meet the project schedule milestones.
 - Capability and plan to adhere to sound business practices
 - Cost realism and cost reasonableness